

CLAIMS

1. An electron source apparatus which has an
electron source and a counter substrate arranged to face
5 the electron source and in which the electron source has
on a substrate a plurality of row-direction wiring lines,
a plurality of column-direction wiring lines, insulating
layers formed at intersections between the row-direction
wiring lines and the column-direction wiring lines, and a
10 plurality of electron-emitting devices connected to the
row-direction wiring lines and the column-direction wiring
lines, and spacer for maintaining an interval between the
electron source and the counter substrate is arranged on
some of the row-direction wiring lines among the plurality
15 of row-direction wiring lines, characterized by
comprising:

a circuit for sequentially turning on the plurality
of row-direction wiring lines; and

a controlled current application circuit for
20 applying a predetermined controlled current to the
plurality of column-direction wiring lines.

2. An electron source apparatus which has an
electron source and a counter substrate arranged to face
the electron source and in which the electron source has
25 on a substrate a plurality of row-direction wiring lines,
a plurality of column-direction wiring lines, insulating

layers formed at intersections between the row-direction wiring lines and the column-direction wiring lines, and a plurality of electron-emitting devices connected to the row-direction wiring lines and the column-direction wiring lines, and spacers for maintaining an interval between the electron source and the counter substrate are arranged at different positions on the plurality of row-direction wiring lines, characterized by comprising:

a circuit for sequentially turning on the plurality of row-direction wiring lines; and

a controlled current application circuit for applying a predetermined controlled current to the plurality of column-direction wiring lines.

3. An electron source apparatus which has an electron source and a counter substrate arranged to face the electron source and in which the electron source has on a substrate a plurality of row-direction wiring lines, a plurality of column-direction wiring lines, insulating layers formed at intersections between the row-direction wiring lines and the column-direction wiring lines, and a plurality of electron-emitting devices connected to the row-direction wiring lines and the column-direction wiring lines, and spacer for maintaining an interval between the electron source and the counter substrate is electrically connected to some of the row-direction wiring lines among the plurality of row-direction wiring lines, characterized

by comprising:

a circuit for sequentially turning on the plurality of row-direction wiring lines; and

a controlled current application circuit for
5 applying a predetermined controlled current to the plurality of column-direction wiring lines.

4. An electron source apparatus which has an electron source and a counter substrate arranged to face the electron source and in which the electron source has
10 on a substrate a plurality of row-direction wiring lines, a plurality of column-direction wiring lines, insulating layers formed at intersections between the row-direction wiring lines and the column-direction wiring lines, and a plurality of electron-emitting devices connected to the
15 row-direction wiring lines and the column-direction wiring lines, and spacers for maintaining an interval between the electron source and the counter substrate are electrically connected to the row-direction wiring lines at different positions on the plurality of row-direction wiring lines,
20 characterized by comprising:

a circuit for sequentially turning on the plurality of row-direction wiring lines; and

a controlled current application circuit for
applying a predetermined controlled current to the
25 plurality of column-direction wiring lines.

5. The electron source apparatus according to any

one of claims 1 to 4, wherein a section of the spacer cut along a plane parallel to a plane in which the counter substrate spreads has a longitudinal direction in a direction in which the row-direction wiring line extends.

5 6. The electron source apparatus according to any one of claims 1 to 4, wherein one of the spacers is electrically connected to only one of the row-direction wiring lines.

10 7. The electron source apparatus according to any one of claims 1 to 4, wherein the spacer comprises a spacer substrate and a portion formed from a material having a resistivity lower than the spacer substrate.

15 8. An image forming apparatus comprising the electron source apparatus defined in any one of claims 1 to 4, and an image forming member for forming an image by irradiation of electrons from the electron source apparatus.

20 9. An image forming apparatus comprising the electron source apparatus defined in any one of claims 5 to 7, and an image forming member for forming an image by irradiation of electrons from the electron source apparatus.